



**Name:** Keron Caton

**School:** Areté Institute of Science

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## WHAT IS DISTILLATION

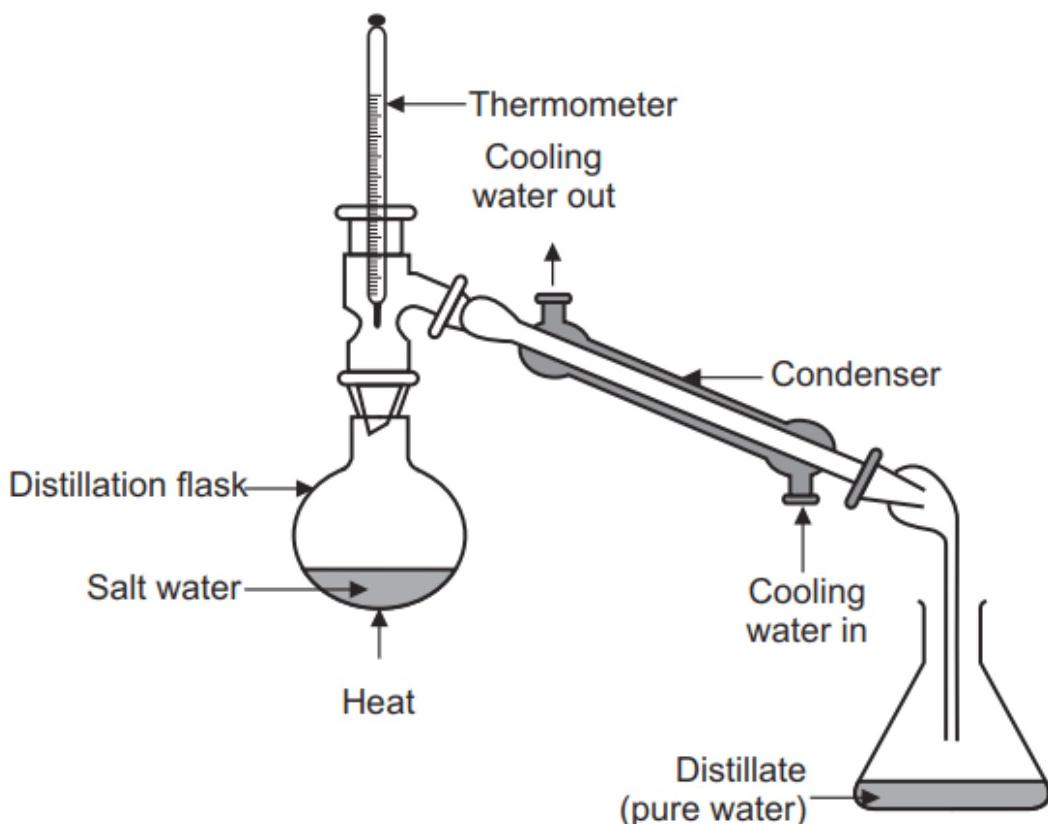
Distillation refers to the selective boiling and subsequent condensation of a component in a liquid mixture. It is a separation technique that can be used to either increase the concentration of a particular component in the mixture or to obtain (almost) pure components from the mixture. The process of distillation exploits the difference in the boiling points of the components in the liquid mixture by forcing one of them into a gaseous state.

It is important to note that distillation is not a chemical reaction but it can be considered as a

# physical separation process.

## SIMPLE DISTILLATION

A method of separating mixtures based on differences in their volatilities in a boiling liquid mixture. The components in a sample mixture are vaporised by the application of heat and then immediately cooled by the action of cold water in a condenser.

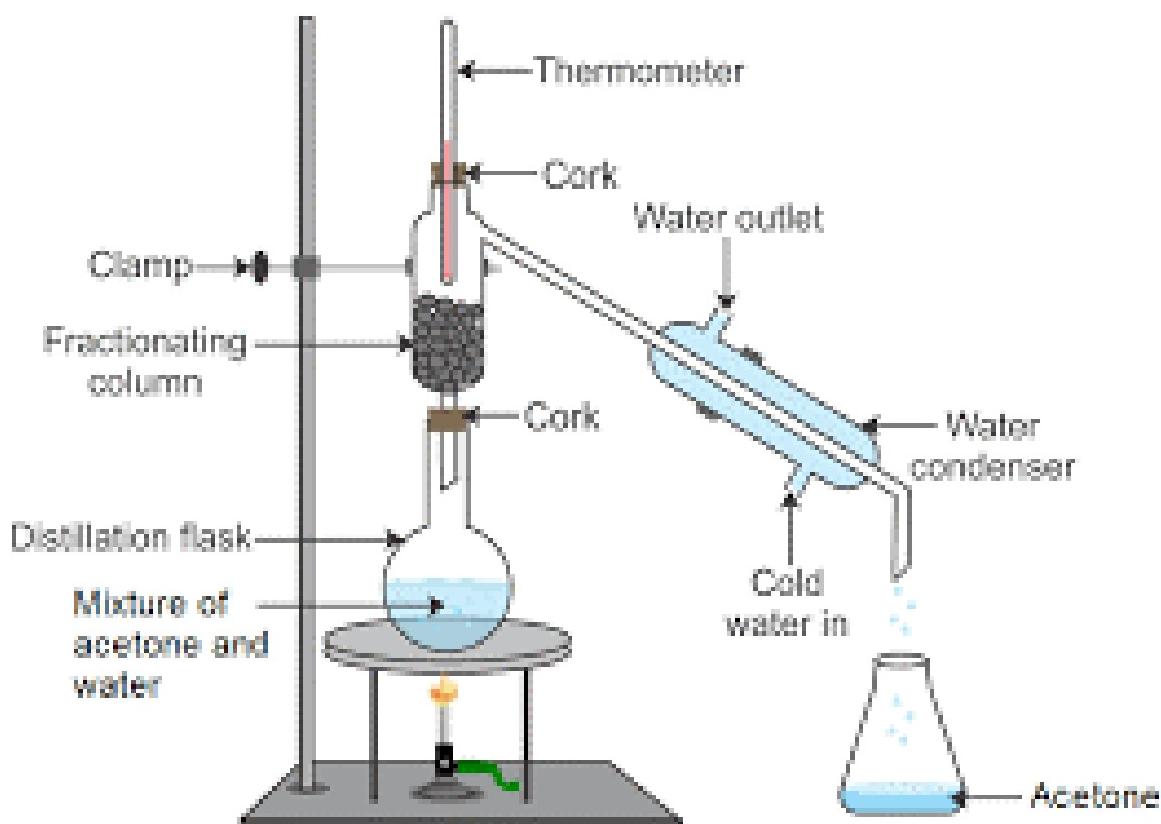


## FRACTIONAL DISTILLATION

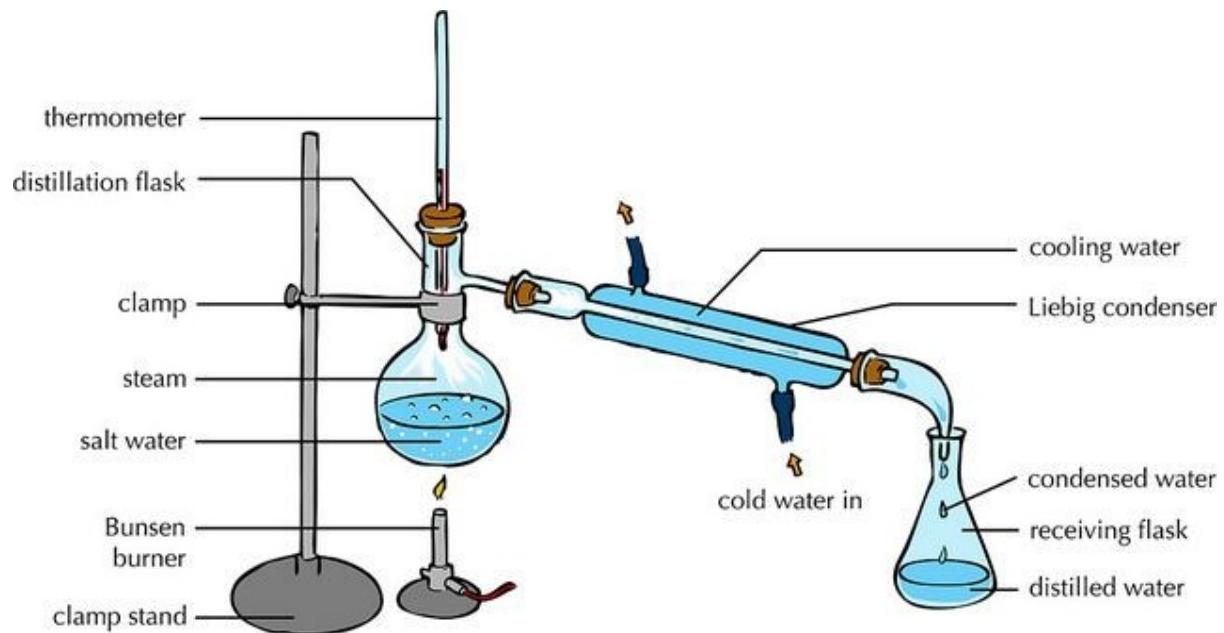
Fractional distillation is a type of distillation which involves the separation of miscible liquids. The process involves repeated distillations and condensations and the mixture is usually separated into component parts. Fractional distillation will need additional equipment, and that equipment is called the ‘fractionating column’. It is used in fractional distillation, because the liquid mixtures involved in the process, have boiling points that are similar to each other.

The fractionating column acts as a minor obstruction to the rising gas. It will prevent the ‘not so’ pure

vapor from passing through. The gas will condense on the surface area of the packing material in the fractionating column, and will be reheated by the rising hot gas, to be vaporized again until it becomes 'pure'.



## LABELLED DRAWING OF APPARTUS FOR DISTILLATION



## **HOW IS FRACTIONAL DISTILLATION DIFFERENT FROM SIMPLE DISTILLATION?**

Simple distillation separates a liquid from a solid-liquid solution while fractional distillation separates a liquid from a solution of two miscible liquids.

Another difference between fractional distillation and simple distillation is that fractional distillation is used a mixture containing chemicals to separate, which have boiling temperatures close to each other. On the other hand, simple distillation is used to separate substances in a mixture that has noticeably different boiling points.

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